

CROSSETT EXPERIMENTAL FOREST

Short history/brief introduction: In 1934, the Crossett Experimental Forest (CEF) was established about 7 miles south of the town of Crossett in Ashley County, Arkansas, from a donation of 1,680 acres of land by the Crossett Lumber Company to the Southern Forest Experiment Station (now the Southern Research Station). The Crossett Research Center was the first USDA Forest Service branch research station in the South. Previously, all field research had been conducted from station headquarters in New Orleans, LA. Research on forest management in second-growth loblolly and shortleaf pine stands was to be conducted and demonstrated to forest managers and landowners throughout the South. During the following six decades, Forest Service researchers associated with Crossett have published more than 1,000 articles on forest management and silviculture. More than 45,000 foresters, students, landowners, and university staff have visited the Experimental Forest and benefited from its research. Currently, the CEF is managed by SRS-4106, Southern Research Station, and is affiliated administratively with the Jessierville and Winona RD of the Ouachita NF.

Climate: The CEF has a subtropical temperate climate. Over the 68-year period of record, annual temperatures averaged 63.7 degrees Fahrenheit and annual precipitation averaged 55.5 inches. On average, March was the wettest month and September the driest. August was the hottest month and January the coldest. The frost-free period is about 240 days. Occasional glaze storms become severe enough to damage vegetation in the area, and high winds have also been associated with localized tree damage.

Soils: The CEF is located in the Western Gulf Coastal Plain. Soil types are oriented in relation to several intermittent drainages. Arkabutla silt loam (Aeric Fluvaquents) occurs in the floodplain along the drainages. Providence silt loam (Typic Fragiudalfs) usually occurs on side slopes along the drainages, and Bude silt loam (Glossaquic Fragiudalfs) is found on upland flats. Providence and Bude soils were formed in thin loessial deposits. A number of pimple mounds or Mima mounds occur on the flats between the drainages. Site index for loblolly and shortleaf pines (*Pinus taeda* and *P. echinata*) ranges from 85 to 95 feet at 50 years.

Vegetation type(s): The 80-acre Reynolds Natural Area is a mature, closed canopy pine-hardwood stand that has received little human intervention since 1934. The remainder of the CEF is under management for natural pine sawtimber except for streamside management zones. Loblolly pine is the dominant species with lesser amounts of shortleaf pine. Approximately 40% of the area is under even-aged management and 60% under uneven-aged management. The goals of both silvicultural systems are to produce high-quality, large sawtimber trees. Rotation lengths for even-aged stands are from 40 to 60 years, and reproduction methods include patch clearcuts, seed trees, and shelterwoods. Although some group selection cutting is done, most of the uneven-aged stands are managed using singletree selection.

Long-term databases:

1. Weather records began in 1934; there are several years of missing data in the mid-1970's.
2. Inventories of the Good and Poor Forties Demonstration Areas began in 1936 and are repeated about every 5 years.

3. Inventories of trees in the Reynolds Natural Area began in 1937 and are repeated at approximate 10-year intervals. Monitoring understory vegetation began in 1952 and is conducted about every 10 years.
4. Inventories of the Methods of Cut Demonstration Area began in 1942 and were repeated at 5-year intervals although some gaps occur.
5. Pine seed production has been monitored annually since 1978.

Research – past and current:

1. Historical studies have focused on all aspects of the silviculture of natural pine stands. Hallmark research was conducted on developing techniques for competition control, the rehabilitation of understocked pine stands, and the uneven-aged management of loblolly and shortleaf pines.
2. Current research studies include: group selection opening size, thinning regimes for rapid sawtimber production, impacts of competition control on pine growth and yield, and the use of silvicultural practices to create an old-growth stand character.
3. Current demonstration areas include: methods of cut for regenerating pines, conversion of plantations to uneven-aged structure, the Reynolds Natural Area, rehabilitation of understocked pine stands, the Good and Poor Farm Forestry Forties, obtaining natural pine regeneration using clearcutting or the seed-tree method, and controlled burning for competition control in uneven-aged stands.

Major research accomplishments and impacts on management:

1. Many practices for effective control of competing vegetation were developed and tested at the CEF.
2. Much of our knowledge about how to create and sustain uneven-aged stands of loblolly and shortleaf pines was developed at the CEF.
3. Many of the silvicultural practices used to regenerate and tend to natural even-aged stands of loblolly and shortleaf pines were developed at the CEF.

Collaborators: Researchers at the University of Arkansas—Monticello have conducted several cooperative studies on the CEF. The facilities of the CEF serve as headquarters of the Arkansas Forestry Commission in Ashley County; attached personnel help with some of the forestry activities on the CEF. With assistance from the Arkansas Game and Fish Commission, the CEF is an official State Wildlife Management Area, which features the use of primitive weapons for hunting whitetail deer. The CEF serves as a training center and outdoor classroom for various user groups. Activities include field days, workshops, and tours that demonstrate proven forest management techniques, and the Arkansas Cooperative Extension Service collaborates in this effort.

Research opportunities:

1. All aspects of the management of natural pine and pine-hardwood stands.
2. The impacts of silvicultural practices on non-timber resources such as soils, wildlife, and visual properties.
3. The use of forest demonstration areas to help educate the public about good forestry practices.

Facilities, contact address, website address, location: The CEF HQ is located seven mile south of Crossett AR, on Highway 133. Facilities include an office building, a wood working shop, a soils laboratory building, a gas/oil storage building, a chemical storage building, a three-car garage, a greenhouse facility (not currently used), and a residence. The CEF office has a conference room that will seat about 35 people. The office building, gas/oil storage building, and three-car garage are on the Federal Registry of Historic Buildings. Many miles of improved gravel roads provide excellent access to demonstration and research areas.

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